SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. TITLE OF COURSE: PS1313- Introduction to Astronomy

II. COURSE DESCRIPTION: 3 credit hours
3 **credit hours of lecture and** 0 **credit hours of lab per week.**

A general survey course in astronomy intended for the student with little or no background in the physical sciences. The course will be composed of a study of the solar system, stellar astronomy, galaxies, and cosmology. The course will include the motions of the earth and the measurement of time, as well as the planets and other bodies of the solar system. Also covered is stellar characteristics and evolution. Telescopes will be introduced, and some observations taken. For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.
EduKan course number: PH178.

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Pre-requisite: Writing level of English Composition I

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

The Science Program at SCCC provides opportunities to improve and enhance each student's understanding and comprehension of the natural world through a variety of courses and experiences to develop a scientifically literate citizen.

IV. TEXTBOOK AND MATERIALS:

Astronomy: A beginner's Guide to the Universe, 7th ed.

V. SCCC OUTCOMES

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

I: Read with comprehension, be critical of what they read, and apply knowledge gained to real life
II: Communicate ideas clearly and proficiently in writing, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.
III: Communicate their ideas clearly and proficiently in speaking, appropriately adjusting content fand arrangement for varying audiences, purposes, and situations.
IV: Demonstrate mathematical skills using a variety of techniques and technologies.

VI. COURSE OUTCOMES:

1. To broaden the student's concepts and understanding of the universe in which we live, and to make them more aware of the significance of the discoveries in our time.
2. To improve the student's science vocabulary in order to make them better able to communicate with others, and to read current periodicals intelligently.
3. To expand the student's concept of space and time.
4. To become more aware of some of the instruments and techniques used by astronomers in obtaining data used in formulating the laws of the universe.
5. To identify objects in the night sky.
6. To gain an appreciation for the history of astronomy and to know some of the accomplishments of historic figures.
7. To visualize the motions of the earth in the solar system.

8. To gain a concept of the measurement of time.
9. To understand calendars and seasons.
10. To develop an understanding of the earth-moon-sun relationship.
11. To identify constellations in the night sky.
12. To observe with a telescope and employ a basic understanding of the instrument.
13. To develop an understanding of the phases of the moon.
14. To visualize eclipses of the moon and the sun.
15. Demonstrate understanding of the scientific idealogy.
16. To understand the theory of the origin of the moon.
17. To relate some theories of the origin of the moon.
18. To relate some theories of the origin and evolution of the solar system.
19. To gain a knowledge of the characteristics of the principle planets of the solar system.
20. To list comets, meteoroids and asteroids.
21. To develop an understanding of some physical characteristics of the sun and the effect on the earth.
22. To discuss stellar spectra.
23. To relate stellar distances, magnitudes and motions.
24. To study general properties of stars.
25. To know different types of stars such as variable stars and multiple star systems.
26. To discuss evolution of stars using the Hertzsprung - Russell diagram.
27. To relate stars such as white dwarfs, supergiants, neutron stars and black holes.
28. To study the Milky Way Galaxy.
29. To visualize the interstellar medium.
30. To classify the types of galaxies.
31. To study the properties of quasars.
32. To understand the importance of Red-shift and its implication.
33. To develop a concept of the theories for the origin of the universe.

VII. COURSE OUTLINE:

1. Introduction
2. The Sky and the Calendar
3. The Earth - Sun - Moon System
4. Observations in the Night Sky (Astronomical Calendar)
5. History of Astronomy
6. The Laws of Motion
7. Electromagnetic Radiation
8. Telescope
9. The Solar System
10. The Sun
11. Stellar Properties
12. What is a Star?
13. Star Clusters
14. Stages of Dying Stars
15. The Milky Way
16. Galaxies
17. Universal Expansion
18. Cosmology

VIII. INSTRUCTIONAL METHODS:

1. Lecture and discussion
2. Demonstrations and observations
3. Video, DVDs, and overhead projection
4. Telescope observations
5. Assigned topics

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Textbook
2. White board
3. Handout materials
4. Celestial sphere - globe - slated globe
5. Telescope and binoculars
6. Star chart
7. LRC

X. METHODS OF ASSESSMENT:

Methods of assessing the general course outcomes and the specific course competencies include homework assignments, teacher constructed unit tests, comprehensive final examination, and attendance of night observing.

SCCC Outcome #1 will be assessed and measured by class participation, writing assignments and tests indicating comprehension of assigned readings.

SCCC Outcome #2 will be assessed and measured by written and oral reports describing astronomical systems and the present understanding of the systems.

SCCC Outcome #3 will be assessed and measured by communicating the understanding of the order of systems through written and oral assignments, using diagrams and models to comprehend motions, time and evolution of systems.

SCCC Outcome #4 will be assessed and measured by tests and class discussions of present and historic understanding of systems based on present data.

XI. ADA STATEMENT:

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobble Academic building, room 149 A.

Syllabus Reviewed: 8/16/2022